side of the abdomen or other parts of the body. Mr. Banks was of the opinion that the mites were using the fly simply for migratorial purposes and were not parasitic in any sense of the word.—E. P. FELT.

Platypus punctulatus Chap.—Numbers of this Central American borer were taken last August on mahogany logs which had been shipped around the Horn from Panama and were then in a lumber yard at Astoria. The beetles were coming out in large numbers and attacking freshly sawn sappy mahogany in the yards, running longitudinally, and in some instances vertical galleries into the wood. It was estimated that the injury in early August was as high as $200 per day. Another Ambrosia beetle, namely, *Xyleborus torquatus* Eich., was also taken in some numbers on the mahogany logs. With the above were associated species of *Aulonium bidentatum* Fabr., *Xuthia brevipes* Sharp and *Palorus melinus* Herbst. The Scolytids were kindly identified by Dr. Hopkins through the courtesy of Dr. Howard, while the other Coleoptera were determined by Dr. Schwarz, both of Washington.—E. P. FELT.

PROCEEDINGS OF THE NEW YORK ENTOMOLOGICAL SOCIETY.

MEETING OF APRIL 1.

A regular meeting of the New York Entomological Society was held April 1, 1913, at 8.15 P. M., in the American Museum of Natural History, Vice-President Charles L. Pollard in the chair and twelve members present.

The field committee announced an excursion to the swamp near Roselle Park, N. J., on Sunday, April 13, Mr. Harry G. Barber, guide.

Mr. William T. Davis read a paper on "The Species of *Conocephalus* to be found in New Jersey," which will be printed in the JOURNAL.

The paper was discussed by Messrs. Engelhardt, Leng and Dr. Southwick, the latter recalling the loud noise made by these insects, which he said could be heard above the roar of a train.

Dr. Lutz recalled the Greek myth by which the goddess Aurora, becoming enamoured of the mortal Tithonius, secured for him the gift of immortality, but forgot to include eternal youth, so that eventually he shriveled to nothing but voice, which is still heard in the stridulation of these grasshopper-like insects.

Mr. Davis, recalling the days before the Greeks, commented upon the entomological skill of Noah, supposing that he succeeded in selecting a ♂

and ♀ of each species of insect as passengers in the Ark, a task still quite difficult to perform.

Dr. Lutz read a paper entitled "Notes on *Bombus*," in which he reviewed the structural and color characters of *Bombus* and *Psithyrus* and explained the system of cards he used to aid in their identification. The boreal character of their geographical distribution was noticed and some features of Franklin's recent paper pointed out, especially the curious accident by which a species of the group was dedicated to Professor Fernald, while the species parasitic thereon was named in honor of Mrs. Fernald.

The paper was discussed by Mr. Davis, who recalled the great scarcity of bumble bees in South Florida; by Messrs. Leng and Engelhardt, who described their sudden appearance in Labrador with the first breaking of sunshine through the fog; by Messrs. Dow, Woodruff and Engelhardt in reference to the difficulty of finding large nests, few of which have therefore been bred out in this country. It was suggested that mowing the grass or walking through it barefoot was one way of finding the nests. Mr. Engelhardt spoke of his experience in attempting to dig a nest out of a stone wall which he did not complete, and of the possibility of transplanting nests for study.

Dr. Lutz said the difficulty in finding large nests was in part explained by the fact that some species made only small nests, and exhibited a nest found by Dr. Crampton with specimens of each stage.

Mr. Leng read a paper on the Carabidæ of Florida, to be printed in conjunction with the list of species, which was discussed by Messrs. Angell, Davis, Engelhardt, Grossbeck, Pollard and Dr. Lutz.

Mr. Angell exhibited his series of *Cychrus elevatus,* including a specimen of var. *tenebricosus* labeled Florida, and mentioned that the capture of *Calosoma splendidum* by Brownell at Key West was a unique experience.

Mr. Engelhardt said that in his experience the activity of Florida insects in November depended on weather conditions, some nights having been very good for collecting at night, and followed the next day by excellent beach collecting.

Mr. Grossbeck spoke of *Leptotrachelus dorsalis* being recorded as hibernating in cattails, though perhaps not so closely connected with the plant as *Onota floridana* with the palmetto.

Mr. Davis exhibited a series of *Cychrus elevatus* collected in Cape May Co., N. J., on a flat meadow, far from any trees; and spoke of the environment in which Carabidæ were found in South Florida, Chokoloskee being an island of about 105 acres, of which the nucleus was a clump of mangroves growing out of the salt water, about which soil had gathered, similar to many such islands in the Ten Thousand Islands, where the growth of the west coast may now be seen in progress, but in the case of Chokoloskee aided by Indian shell mounds. Everglade, on the contrary, is on the mainland, very flat and but slightly elevated above high tide, so that it is sometimes inundated during storms, and populated by fiddler crabs at all times, which may be seen walking in the garden. The salt meadow bounds the little elevation on the south side,

mangrove swamps on east and west, and Allen's River on the north, and so completely between them that domesticated turkeys must perforce stay home, finding no shelter in the impenetrable, slimy mangrove swamps if they try to wander. Some of the buildings at Everglade are raised 6 or 7 feet on concrete piers, so that storm-driven seas may sweep under them instead of carrying them away.

Ten miles northeast from Everglade, on the way to Deep Lake, a very low ridge is crossed which bears a different vegetation, including sufficient pine to have caused the local name of Pine Island for it. At Deep Lake oaks and red maples are found. Such elevations are usually accompanied by an exposure of the underlying limestone rock with the characteristic holes.

At Lake Okeechobee the shady side of a house boat on the shore of South Bay afforded extraordinary collecting of Carabidæ. There a quantity of refuse from the house boat had been thrown. A cornfield back of the hotel afforded more collecting, including many Noctuidæ. On the journey between Lake Okeechobee and Fort Myers, a ridge like that noted at Pine Island could again be observed, being central at LaBelle.

Mr. Davis showed photographs of these places, one taken by Mr. Grossbeck, showing Dr. McDonough enveloped in mosquito net, as a silent tribute to the ferocity and number of such insects throughout the swamps.

Mr. Pollard spoke of the Cuban species of pine found on some of the keys, and Mr. Engelhardt commented on the forests of pine noted at intervals on the east coast to the southern extremity of the peninsula. Mr. Davis remarked that several species were peculiar to Florida, their distribution being given by Sargent.

Dr. Lutz showed a photograph of pines at Cow Creek and read an extract in relation to the supposed formation of Florida sandhills by wave action while submerged.

Mr. Dow read extracts from letters he had received from Dr. Walther Horn (referring to the re-discovery of part of the Motschulsky collection), Colonel Casey, Charles Dury and other entomologists.

MEETING OF APRIL 15.

A regular meeting of the New York Entomological Society was held April 15, 1913, at 8.15 P. M., in the American Museum of Natural History, President Dr. Raymond C. Osburn in the chair and eleven members present.

The curator exhibited the progress made in the local collection of galls as arranged by Mr. Mutchler, and called attention especially to the device, consisting of companion boxes, by which it became possible to show together the gall insects and the galls. The galls were loose as usual, each species in a box, and the insects in an adjoining cork-lined smaller box, all proportioned so that the drawer in which they were contained was filled.

The president opened the Symposium on Insects on Plants (including Fungi).

Mr. Leng read a paper on "Coleoptera on Plants," in which he cited the

work of Dr. Sandor Gorka on the alimentary canal, and pointed out that three primary classes, beetles feeding on decaying substances, beetles feeding on living plants, and beetles feeding on living animals, could be recognized and correlated with different types of digestive system as well as with differences in external structure. In each of the three classes, aquatic and terrestrial divisions would be found, with well-marked adaptive structures, and in each would also be found more or less developed parasitic forms, also characterized by structural adaptations. Societies of species, similar to those discovered in plants, could be defined by the parallel adaptations of their external and internal structures, but such would be found to revolve about the food habit rather than considerations of moisture.

Mr. Davis, commenting upon these statemens, said that Carabidæ and Cerambycidæ, though contrasted by Mr. Leng in respect of food habit, were equally attracted by sugar bait.

Dr. Osburn said the Gorka statement that the longest alimentary canal in beetles was correlated with the least nutritious food was corroborated by the known fact that in fishes the purely herbivorous fishes have a long alimentary canal, and in one species it is so long that it is wrapped many times about the air bladder.

Mr. Davis said that ants extract the liquid diet they require from both animal and vegetable matter.

Mr. Weeks said that the Carabidæ found at sugar were predaceous insects and that he had often seen *Calosoma* attack other insects attracted by sugar.

Dr. Lutz called attention to the List of Food Plants compiled by Mr. Mutchler along the lines suggested some time ago by Dr. Southwick, in which the insects attacking each plant are listed as well as the plants attacked by each species. Commenting upon Mr. Leng's paper Dr. Lutz said the great difficulty was that no society governed by local environment would be constituted on the lines suggested, the only approach to such being the recognition of two main environments in the aquatic and terrestrial divisions. The importance of food as one of the factors must be admitted, but only as one of many, and certainly not to the exclusion of moisture, light and probably other influences that had not been mentioned. Continuing, Dr. Lutz said that while the word societies had been used in a broad sense, the word association had been used for more limited groups and in illustration spoke of the various species of insects associated with the pitcher plant, which offered opportunities for further interesting work.

Another interesting example could be found in the Bromeliad insects, in connection with which he referred to the paper in the Annals and Magazine of Natural History, by Scott, Distant and Shelford, in which the small bodies of rain water and condensed dew retained by the curious funnel-like, closely fitting leaf bases of these plants (of which the pineapple is an example) are compared to "a great fractional swamp spread all over tropical America," in the words of Picado. He also referred to Calvert's paper on Costa Rican Odonata in Entomological News, dealing with the same subject; and said that the dragon fly breeding in these places, with the female body greatly

elongated to permit of oviposition in such a deep funnel as the environment requires, the cockroaches, earwigs, katydid-like insects, beetles, etc., inhabiting the same, are grouped into a unit consisting of various organisms found together and under the same environment.

Mr. Engelhardt exhibited the thorn and fruit of an *Acacia* from Guatemala with several specimens of *Bruchus* he had found in the seeds, a species very similar if not identical with our *Spermophagus robiniæ*.

Mr. Barber, after showing a new binder for pamphlets, said that the Homoptera were almost exclusively plant feeders but the Heteroptera exhibited more differentiation, many being predaceous, and all the aquatic forms undoubtedly carnivorous. Of fungus feeders only the Aradidæ could possibly be cited, and those with some doubt on his part.

Mr. Davis exhibited a number of galls caused by the irritation of the Cecidomyid larvæ, and commented on the judgment with which the female always laid an appropriate number of eggs. He spoke of a gall on *Rudbeckia* as large as a man's fist sheltering insects of three orders, including the Hymenoptera parasitic on the other insects, and particularly of oak galls and rose galls, commenting on the two kinds of oak galls shown and the ten species of rose galls known to him. In conclusion he called attention to the erroneous figure on page 599 of Smith's List and the misleading statements sometimes made in reference to female gall insects.

Mr. Grossbeck said that almost all Lepidoptera fed on leaves, about 200 being known as borers in roots and stems and in addition perhaps half the Tineids being leaf miners or feeders on dried fruits and other dry vegetable matter. He spoke of the preference for oak, willow, poplar, wild cherry, etc., exhibited by Lepidoptera and comparative disfavor in which sycamore, beech and alder are held, while the Noctuidæ particularly affect herbaceous plants and grasses.

Dr. Osburn, speaking of the Syrphidæ, instanced *Volucella* as feeding on soft-bodied cacti, *Microdon* in bulbs of *Narcissus* and *Eumerus* in onion bulbs, and referred to the variation in size noted in *Pemphus*.

Mr. Leng, replying to Dr. Lutz's criticism, said that such associations as the Bromeliad insects exhibited no parallel adaptations of structure to justify regarding them as a natural society. The student of plant societies had been able to trace such adaptations in the various members of the societies they had recognized, and became thereby justified in doing so. The bond they had chosen as their principal guide, the moisture of the soil, having failed in beetles, the coleopterist must try others, and may find a satisfactory substitute in food, though it must be admitted that as a bond it will not produce units tied to a particular plant, but rather to the same parts of different plants.

Mr. Weeks expressed some doubt as to the value of such discussions which he said by minute subdivision might be prolonged indefinitely, but suggested that if concentrated on such an economic subject as the enemies of the house fly, might become of some practical value.

Mr. Davis exhibited insects caught on a walk taken by Mr. Engelhardt and himself from Central Park to Massepequa, Long Island, on April 6, espe-

cially the moths *Jodia rufago* and *Copipanolis cubilis* recently emerged but found hiding among dry leaves. He spoke also of the excursion on April 13 to Roselle Park and showed specimens of *Cremastochilus* found there with ants.

Dr. Lutz exhibited F. W. L. Sladen's recent work on the "Humble Bee" and commented on the ingenious plan therein described for studying the nests.

The meeting closed with a discussion of alternating generations in gall insects in which Dr. Lutz, Mr. Davis and Mr. Weeks took part.

MEETING OF MAY 6.

A regular meeting of the New York Entomological Society was held May 6, 1913, at 8.15 o'clock P. M., in the American Museum of Natural History, President Dr. Raymond C. Osburn in the chair, and nineteen members and one visitor present.

The field committee reported a successful meeting on Garret Mountain, with nine members and two visitors participating.

A letter was read inviting the Society to send a delegate to the fiftieth annual meeting of the Entomological Society of Ontario, action upon which was postponed to the following meeting.

A letter from Nathan Banks was read, requesting the Society to select two members to serve on the American National Committee on Nomenclature.

On motion the president was instructed to make the selection and later in the evening announced the names of Messrs. Grossbeck and Leng.

A letter was also read from Dr. Richard E. Kunze, of Phœnix, Ariz., addressed to Mr. Groth, and sending for distribution twenty copies of Dr. Kunze's paper on "Entomological Materia Medica."

The Secretary was instructed to convey to Dr. Kunze the thanks of the members and their congratulations to him upon completing his 75th year.

Mr. Barber presented photographs of Messrs. Jacob Doll and Charles Schaeffer surrounded by entomological material.

Mr. Dow read a paper entitled "The Rector of Barham," in which the work of Kirby and his contemporaries was pleasantly reviewed, and many interesting facts concerning those early entomologists brought to light. On request, Mr. Dow, continuing, spoke of the celebrated entomologists of all lands up to the time of Leconte.

His remarks were discussed by Messrs. Schaeffer, Barber, Davis, Angell, Lutz and the president, and will be printed in Bulletin of the Brooklyn Society.

Mr. Davis read a paper on "A Dragon Fly New to the Local List," exhibiting *Dorocordulia lintneri* Hagen collected some years ago by John A. Grossbeck at Paterson, N. J., on May 4 and later presented to the American Museum of Natural History. This specimen is a female. The type locality is Center, near Albany, N. Y., where the species was collected by Dr. Lintner on May 27, and it has also been reported from Lake Winnipeg, Canada. The species is northern and rare in collections, and it is particularly interesting that it should occur in New Jersey. It is an addition to the local list.

Mr. Davis spoke also of the systematic position of the species and the characters of the genus to which it is at present assigned.

Mr. Mutchler exhibited a specimen of *Carabus vietinghovi* Adams, collected on June 23, 1908, in the Mackenzie River delta by Dr. Anderson.

The president asked for notes on early spring collecting.

Mr. Shoemaker exhibited a moth taken near Massapequa, Long Island, April 6, a freshly emerged specimen of *Feralia major,* which presented a different appearance to ordinary cabinet specimens.

Mr. Woodruff read a paper describing his capture of *Donacia emarginata* in the flowers of *Caltha palustris,* the marsh marigold or cowslip, and finding the cocoons, in which the larvæ had pupated, clustered above the roots of the same plant.

He also pointed out the constant color difference in the sexes.

Mr. Grossbeck spoke of the Garret Rock meeting and its results, indicating that the season has been an early one for Lepidoptera. Thus *Thecla augustus* and *irus,* of which only a few rubbed examples were seen May 4, 1913, were formerly abundant at this season; specimens of *Pergus centaureæ* from 1901 to 1910 were found between April 25 and May 14, and were abundant and in fine condition during the first days of May, but none were seen on May 4 this year; *Anthocharis genutia* in the same way was formerly abundant May 6 and 18 with the ♀♀ appearing later than ♂♂, while this year on May 4 more ♀♀ than ♂♂ were taken.

Mr. Grossbeck added as an additional example of the early season the fact noted by Mr. Eaton in charge of Newark mosquito work, that *Culex cantator* was a week or ten days earlier in the marsh than in 1912.

Mr. Davis mentioned finding a wing of *Parthenos* (*Catocala*) *nubilus* on May 4, as a further evidence of the early season, and *Pamphila metea* as one of the rarer species caught.

Mr. Dow described the condition of a dead hickory five inches in diameter whereof the inner bark was filled with pupæ of *Magdalis barbita?* and the outer bark with freshly emerged imagos, some still whitish in color. The perfect specimens flew away swiftly, but enough were counted to indicate 175 to 200 beetles to each square foot of bark. The Trogositid beetle *Tenebrioides dubius* was found feeding on the pupæ.

Mr. Shoemaker spoke of the moth *Homoptera cingulifera.*

Mr. Davis mentioned Mr. Shoemaker's capture of the spring form of the Luna moth, *Tropheo luna-rubromarginata.*

Mr. Davis also described his visit on April 18 to East Jewett, N. Y., in the Catskill Mountains, showing photographs and some of the specimens caught, including *Ischalia costata,* a rare species of the Pyrochroidæ, which he found resting on the protruding root of a tree.

Mr. Schaeffer said this species was never abundant, he himself having taken only a few specimens in the Black Mountains, N. C., by sifting far down in deep mouldy leaves.

Mr. Davis read extracts from letters received from Colonel Wirt Robinson,

describing the number of species found at West Point in early spring by examining the windrows or washup at the end of the reservoir, and from Charles Dury giving the only record for Ohio of the dragon fly, *Anax longipes,* one specimen seen in Spring Grove Cemetery, but not caught despite two days' endeavor and a permit he said he obtained to shoot it.

Mr. Engelhardt spoke briefly of his experiences at Claremont, N. H., May 1 to 3, where *Feralia major* was found in pine and hemlock groves, and many other species caught by day and at night.

Mr. J. W. Angell exhibited his collection of *Lucanus cervus* and its varieties and called especial attention to a monstrosity in which the tibiæ were double.

Mr. Schaeffer mentioned the various published records of monstrosities, especially the papers by Kraatz, Horn and Jayne.

Dr. Lutz said in breeding *Drosophila* specimens with ten or twelve legs have occurred, but the character has not proven constant.

Mr. Leng exhibited a specimen of *Ceratomegilla ulkei,* a ladybug, caught by Dr. Anderson in the Mackenzie delta, and remarked that the generic character described by Crotch, the dilation of the apex of the second antennal joint was missing, and its existence in the type possibly another instance of deformity, in which case the genus *Ceratomegilla* would become identical with *Megilla.* The structure of the claw is in fact identical with *Megilla,* and the pattern of maculation the same except that the black pigment is more extended in *ulkei.*

Mr. Schaeffer engaged to examine the type when next in Boston.